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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,782	09/23/2003	Volker Schliephake	243110US0	9559

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1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

PUTTLITZ, KARL J

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/667,782	<b>Applicant(s)</b> SCHLIEPHAKE ET AL.	
	<b>Examiner</b> Karl J. Puttlitz	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/23/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### **Arrangement of the Specification**

Applicant is requested to conform the Specification to the requirements set forth in M.P.E.P. § 608.01(a) and 37 C.F.R. 1.77 for arrangement of applications. Appropriate correction is required.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 12/23/2003 was considered by the examiner. The initialed Form PTO-1449 is attached.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 6,433,222 to Eck et al. (Eck).

The rejected claims are drawn to, inter alia, a process for the preparation of at least one organic compound by heterogeneously catalyzed partial gas-phase oxidation of at least one organic precursor compound in a reactor loaded with catalyst, in which at least one portion of the components of the reaction gas

Art Unit: 1621

starting mixture is brought from a low initial pressure to a higher final pressure by means of a compressor, wherein the compressor used is a radial compressor.

Other claimed embodiments wherein reagents are chemical compounds having at least one ethylenically unsaturated double bond selected from the group consisting of acrolein, methacrolein, acrylic acid, methacrylic acid, acetonitrile and methacrylonitrile.

Eck teaches that a gaseous-product mixture which essentially has the composition of a reaction mixture of the catalytic gas-phase oxidation of C3 -alkanes, C3 -alkenes, C3 -alkanols and/or C3 -alkanals and/or precursors thereof to acrylic acid is prepared. Particularly advantageously, the gaseous product mixture is prepared by catalytic gas-phase oxidation of propene, propane or acrolein. All precursors of the abovementioned C3 compounds in which the actual C3 starting compound is formed as a precursor only during the gas-phase oxidation can be used as starting compounds. Acrylic acid can be prepared directly from propane. See column 3, lines 39-49.

The invention is taught with reference to the following figure:

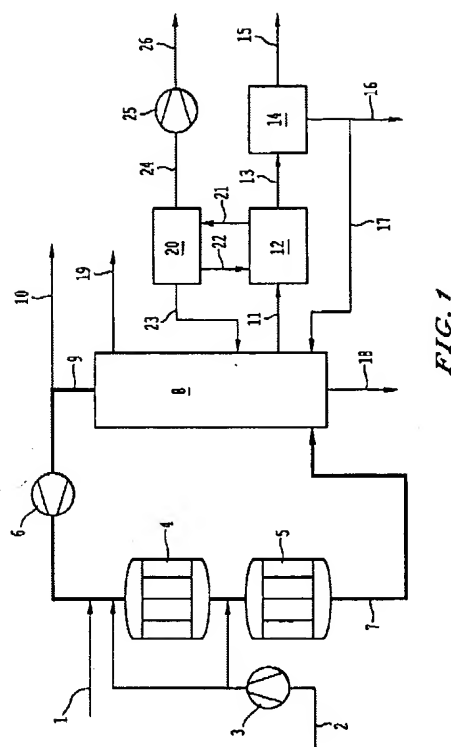


FIG. 1

wherein air is fed to the synthesis reactors 4 and 5 via line 2 and compressor 3. In addition, recycle gas compressed by compressor 6 and essentially consisting of nitrogen, carbon oxides and unconverted starting materials, and propene originating from line 1, are fed to the reactor 4 via line 9. The first stage of the two-stage gas-phase oxidation, i.e. the oxidation of propene to acrolein, takes place in synthesis reactor 4. In synthesis reactor 5, the acrolein is then oxidized to the corresponding acid. See column 9, lines 36-45.

The difference between the process disclosed in Eck and the process covered in the rejected claims is that Eck fails to explicitly teach that the compressor is a radial compressor. However, absent any objective evidence to the contrary, a radial compressor is common in the fields of chemical reactors and chemical engineering. Therefore, a radial compressor is within the

Art Unit: 1621

motivation of those of ordinary skill, and thus, the rejected claims are prima facie obvious in view of Eck since the reference teaches or suggests the elements of the claims with a reasonable expectation of success.

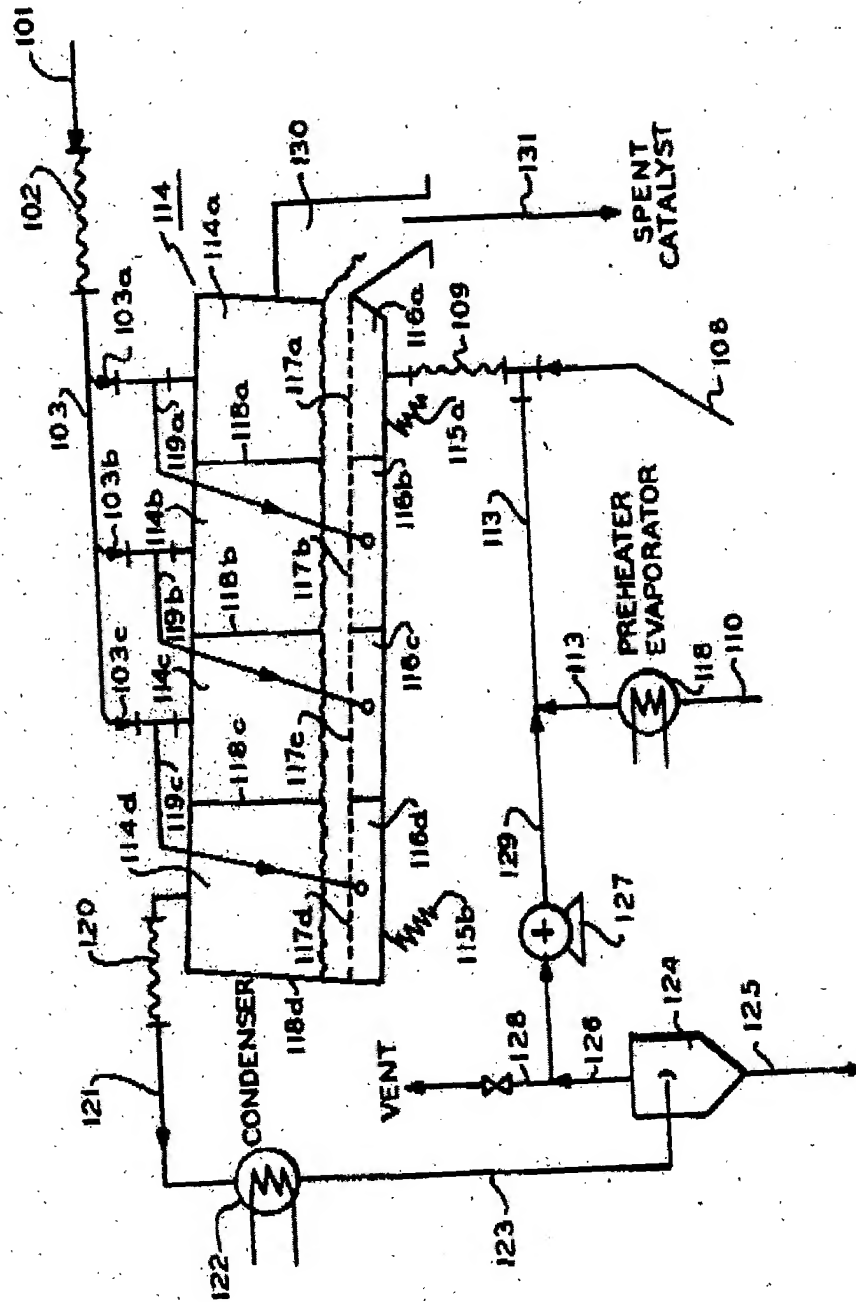
Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent No. 5,245,093 to Ember (Ember).

Claim 7 is drawn to those embodiments of the invention wherein oxidation is an ammoxidation.

Ember teaches A process for reacting a fluid phase (gaseous and/or liquid phase) in contact with a solid phase in a reaction zone.

The invention is taught with reference to the following figure:

FIG. 2



Wherein product in stage 114d of reactor 114 is withdrawn through flexible line 120, and passed through line 121 to condenser 122. The effluent is then passed through line 123 to vapor-liquid separator 124. A liquid effluent product is recovered through line 125, while vapors are withdrawn through line 126. A portion of the vapors is vented through line 128, while the rest of the vapors are passed through compressor 127 and line 129, to be joined with fresh feedstock in line 113. See column 6, lines 58-66.\

Reactions include those that are exothermic, such as hydrogenations, oxidation reactions, chlorinations, ammonolyses and ammoxidation.

The difference between the process disclosed in Embers and the process covered in the rejected claims is that Embers fails to explicitly teach that the compressor is a radial compressor. However, absent any objective evidence to the contrary, a radial compressor is common in the fields of chemical reactors and chemical engineering. Therefore, a radial compressor is within the motivation of those of ordinary skill, and thus, the rejected claims are prima facie obvious in view of Embers since the reference teaches or suggests the elements of the claims with a reasonable expectation of success.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is




Art Unit: 1621

(571) 272-0645. The examiner can normally be reached on Monday-Friday (alternate).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571) 272-0646.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

Karl J. Puttlitz  
*Assistant Examiner*



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